



ATTACHMENT B

GREENHOUSE GAS (GHG) MITIGATION

This technical backgrounder focusses on the role of the City of Nanaimo in mitigating climate change through encouraging the reduction of Greenhouse Gases (GHG).

The City of Nanaimo has declared a climate emergency: in April 2019, it set itself an ambitious target of reducing community emissions by 50 to 58% of 2010 levels by 2030, and by 94% to 107% of 2010 levels by 2050.

Community Emissions are the emissions generated by Nanaimo residents and businesses. Even though the City of Nanaimo does not directly control the GHGs emissions in its community, the City has adopted targets that, working with residents and senior levels of government, it hopes to achieve in order to help Nanaimo do its part to reduce its emissions and help Canada and British Columbia meet their climate commitments.

Technical expertise in this backgrounder was provided by Duncan Cavens, C2MP Consulting Ltd. with oversight by Lanarc 2015 Consultants Ltd.

RECENT ACHIEVEMENTS AND CONTEXT: PLANS AND POLICIES

Nanaimo has adopted policies over the years that seek to directly or indirectly reduce community emissions. Some of these include:

- ▶ The 2008 Official Community Plan had a strong sustainability focus and outlined a number of policies directly related to energy and emissions. This included encouraging greater energy efficiency in buildings and neighbourhoods, implementing a sustainability checklist, and encouraging multi-use buildings. Other policies were broadly supportive of increasing energy efficiency and emissions reductions: increasing density along nodes and corridors; prioritizing active transportation; reducing vehicle trips; and supporting waste reduction.
- ▶ In 2010 Council amended its OCP to adopt specific targets for GHG reductions: to reduce emissions by 33% below 2007 levels by 2020, and 80% of 2007 levels by 2050.
- ▶ The Community Sustainability Action Plan (2012) and its accompanying Community Energy and Emissions Study (2011) suggested specific policies, indicators and an action plan for achieving the OCP's revised goals.
- ▶ The Transportation Master Plan describes a vision for a multi-modal transportation system that should result in less-energy intensive mobility;

- ▶ In 2018, Council endorsed the “BC Energy Step Code Implementation Strategy”, which identified how City would adopt the BC Step Code to require new buildings to achieve higher energy efficiency than the BC building code;
- ▶ In 2020, the Parking Bylaw was amended to require electric vehicle charging infrastructure in new developments;
- ▶ The Climate Change Resiliency Strategy (ongoing as of summer 2020) is identifying climate change impacts and identifying actions to protect residents and municipal assets.

TARGETS & RESULTS

GHG Inventory

As GHGs are invisible and produced from a wide variety of sources, there exist numerous approaches and protocols for calculating municipal-scale emissions. This backgrounder uses the Partners for Climate Protection (PCP) approach to measuring and tracking community-scale emissions, which accounts for greenhouse gases emitted within the boundaries of the City, in particular from buildings, transportation and solid waste.

Using base data released by the Province, an analysis was conducted that It shows that despite Nanaimo’s policies and strategies listed above, GHG emissions have increased by 18% between 2010 and 2017 (the latest year where data is available). This compares to a population growth during this period of 14%: emissions are growing faster than population growth.

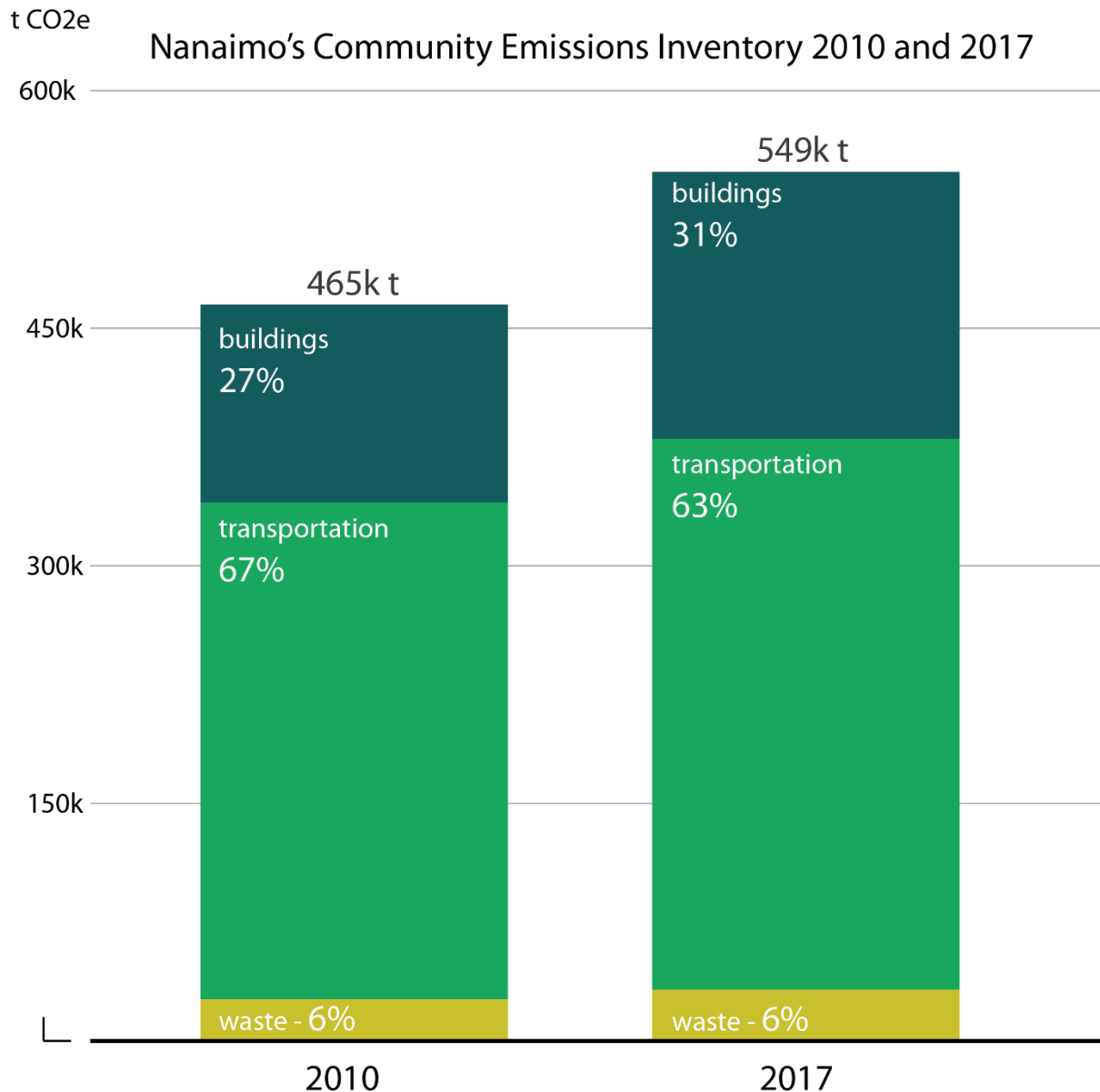


Figure 1 Community Emissions Inventory

Growth is particularly dramatic in the building sector, which saw large growth in natural gas use (55% increase), and much smaller increases in electricity (5%). While some of the growth is likely from economic growth and expansion of energy-intensive workplaces, a large proportion is likely due to residents and businesses continuing a long-term shift from electricity to natural gas due to arrival of natural gas on the Island in the 1990s. As natural gas produces 16x more emissions than BC Hydro electricity for an equivalent unit of energy, this shift has profound implications for Nanaimo's ability to reach its climate targets.

Additional emissions from plane and ferry travel, and emissions from the production and transport of food and goods consumed by Nanaimo residents and businesses, while likely substantial, are not easy to track and come from areas over which local governments have little to no influence or jurisdiction. It is important to note that Nanaimo's residents and businesses are responsible, either directly or indirectly, for these additional emissions. One local government that has tried to quantify them is the District of Saanich, which estimates that if emissions from other transportation and industrial activities are included, its emissions would increase by 20%. By including the emissions from goods consumed by residents, its emissions would increase further.

SCENARIO: BUSINESS AS USUAL IN NANAIMO

GHG emissions overlap federal, provincial and local government jurisdictions. Nanaimo will only be able to reach its reduction goals with strong partnership with federal, provincial and regional governments and aggressive implementation of GHG reduction plans and actions at all levels of government.

Using C2MP's CAN model, current policies were analyzed to understand what their effect could be on Nanaimo's emissions in the future. Using population and employment projections prepared by Vann Struth Consulting Group in 2020, future building, transportation and solid waste emissions were estimated for 2030 and 2050. Only concrete policies and regulations were analyzed: all levels of government have adopted aspirational targets that are more aggressive but that will not be realized without concrete policies. The following policies were included in the scenario:

- ▶ Federal standards for new vehicles (to 2025);
- ▶ Net-zero building code by 2032 for new construction;
- ▶ Provincial low-carbon fuel regulations (to 2025);
- ▶ BC's Zero-Emissions Vehicle Act;
- ▶ BC Transit's Low Carbon Fleet Program;
- ▶ Nanaimo's Step Code implementation;

Policies that are based on voluntary participation (such as the CleanBC incentive programs currently running) were not modelled, as the uptake rates are difficult to estimate and have historically been very low.

Nanaimo’s Community Emissions- Business as Usual Scenario

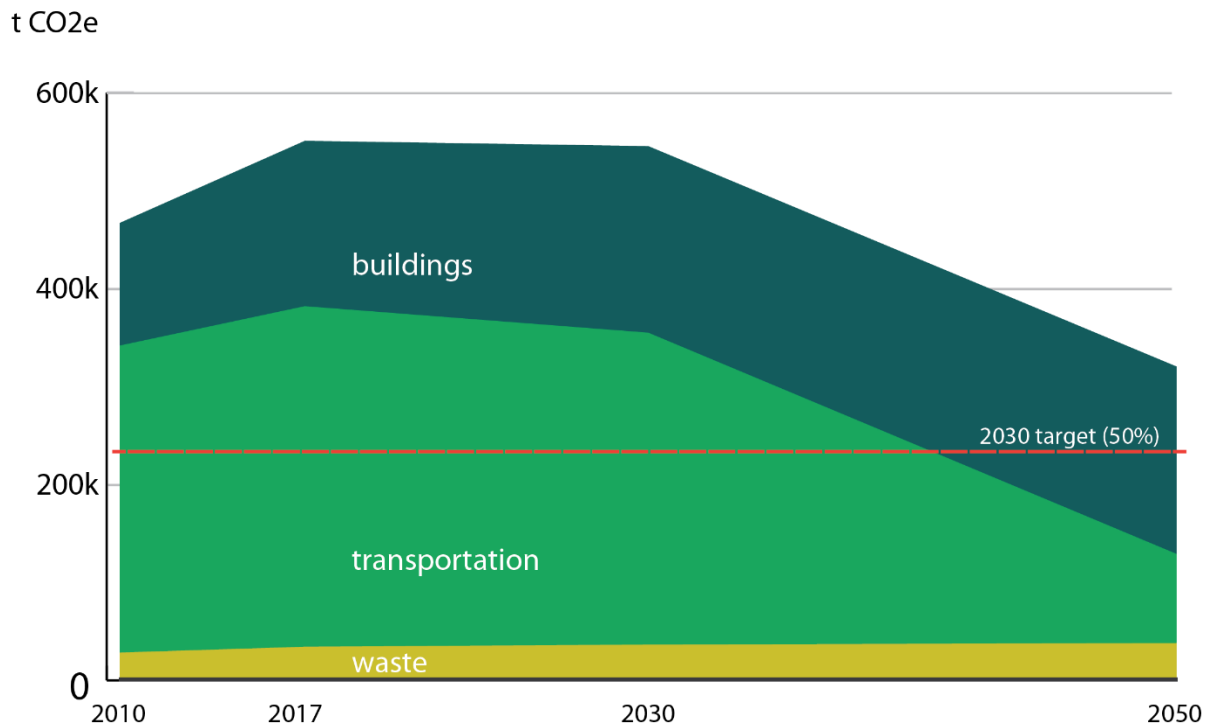


Figure 2 Modelled Business as Usual Scenario

The model shows that while current policies could result in a 32% reduction in GHGs from 2010 to 2050, reductions from 2017 to 2030 would only amount to 1%. However population growth is predicted to be 31% from 2010 to 2030 and 53% from 2010 to 2050, which means that emissions per capita are expected to decline substantially.

The decline can largely be attributed to the provincial policies on zero-emission vehicles and the low-carbon fuel standard. While the bulk of the decline is not expected to be seen until after 2030 (owing to the natural replacement rate of vehicles), the decline is dramatic.

In considering building emissions, analysis differentiates between future (new) and existing building stock. Emissions from new buildings are modelled to be a small proportion of the overall emissions (11%) Existing buildings are the one area where existing policies have little predicted effect: ongoing fuel switching from electricity to natural gas (which increases emissions) is expected to counteract any efficiency gains from households and businesses increasing efficiency when upgrading their heating and hot water systems.

KEY CHALLENGES & OPPORTUNITIES

KEY CHALLENGES

- ▶ Reducing community emissions has proven difficult: despite a decade of policies targeting emissions reductions, emissions have risen by 18%;
- ▶ Nanaimo's 2030 targets substantially exceed the Provincial targets (50-57% vs 40% by 2030 - the City's target also starts from a 2010 baseline, which was lower than the province's 2007 baseline due to the lingering effects of the 2008 financial crisis). As a result, Nanaimo can not merely rely on federal and provincial policies and programs to meet their local targets: the City needs to substantially supplement senior government actions despite having fewer powers and financial resources;
- ▶ Emissions targets are absolute, not per capita. Economic and population growth provides investment and capital to fund low-carbon projects, but also means that, on average, individual households and businesses in Nanaimo need to reduce their emissions by more than 50-57%;
- ▶ At present, natural gas is considerably less expensive on a per GJ basis than low-carbon alternatives. This is particularly apparent when comparing high-efficiency natural gas heating with standard electric furnaces or baseboards;
- ▶ Again at present, many low-carbon options (such as heat-pumps, electric bikes or electric vehicles) have higher upfront costs than the default fossil fuel alternative. While operating expenses are either comparable (heat pumps) or substantially lower (electric vehicles), higher initial costs are a barrier for some Nanaimo residents and businesses to choose low-carbon options;
- ▶ Like all local governments in BC, Nanaimo has limited and/or shared jurisdiction over key drivers of carbon emissions, such as building codes and vehicle efficiency. The City has limited ability to compel residents and businesses to adopt low-carbon fuels, and are limited to educating and providing incentives in many areas;
- ▶ Many building systems, municipal infrastructure and some vehicles have longer expected lifetimes than 2030 or even 2050. Vehicles and heating systems purchased today may still be contributing carbon well after 2030. Today's decisions around street design and pedestrian infrastructure will likely be in place after 2050;
- ▶ Local data on emission sources, are poor, in particular from transportation. Without regular updates of data on the sources of emissions and/or key indicators, it is difficult to ascertain if policies are having the desired effect and if they need to be modified or accelerated;

KEY OPPORTUNITIES

- ▶ Due to its abundance of Hydro power, BC has a very low carbon electricity grid and relatively low electricity rates compared to other jurisdictions. As a result switching from fossil fuels to electricity has an immediate and substantial reduction in carbon emissions without needing to find other (more expensive) renewable sources of energy;
- ▶ The provincial and federal governments are accelerating policies and programs to support residents and businesses lower their carbon emissions, including those in Nanaimo. Some examples include:
 - The Province has mandated that 10% of new personal vehicles sold in BC need to be electric vehicles (EV) by 2025 (25% by 2030, 100% by 2040) and there are substantial subsidies to new EV purchasers;
 - The Province has promised updates to the BC building code requiring net-zero buildings by 2032;
 - BC Transit has committed to a low carbon fleet by 2040;
 - The Province is funding rebate programs for switching from fossil fuel building systems to low-carbon alternatives;
- ▶ Federal and provincial infrastructure programs are increasingly targeting investments that lower carbon emissions as a priority goal;

POTENTIAL NEXT STEPS

HOW CAN NANAIMO REDUCE ITS EMISSIONS?

The vast majority of Nanaimo's GHG emissions result from burning fossil fuel to provide energy for transportation and to heat buildings and hot water. Broadly speaking, there are only two ways to reduce the emissions: reduce the demand for these fuels, or switch to less carbon intensive fuels.

Reducing demand is by far the least expensive option in theory, but in practice it has proven to be difficult to actually achieve at the scale necessary to meet Nanaimo's targets. Reducing demand by upgrading furnaces from 85 to 98% efficiency does not equate to a 50% reduction in decade: indeed there are rebound effects where increasing efficiency lead to increased demand as residents increase the inside temperature to improve comfort at a slightly reduced cost, negating the efficiency gains. Similarly, switching some work trips from private vehicles to walking or cycling can induce longer recreational or shopping trips due to transportation affordability overall.

While consumers often focus on highly visible renewable energy sources such as solar or wind, these approaches are expensive, especially at a household scale. In BC, due to the abundance of relatively low cost hydroelectricity, switching from fossil fuels to electricity is generally the most cost effective way to achieve deep emissions reductions quickly. Coupling this switch with an improvement in efficiency can result in very significant emission reductions with a competitive operating cost.

Carbon Emissions of Common Energy Sources

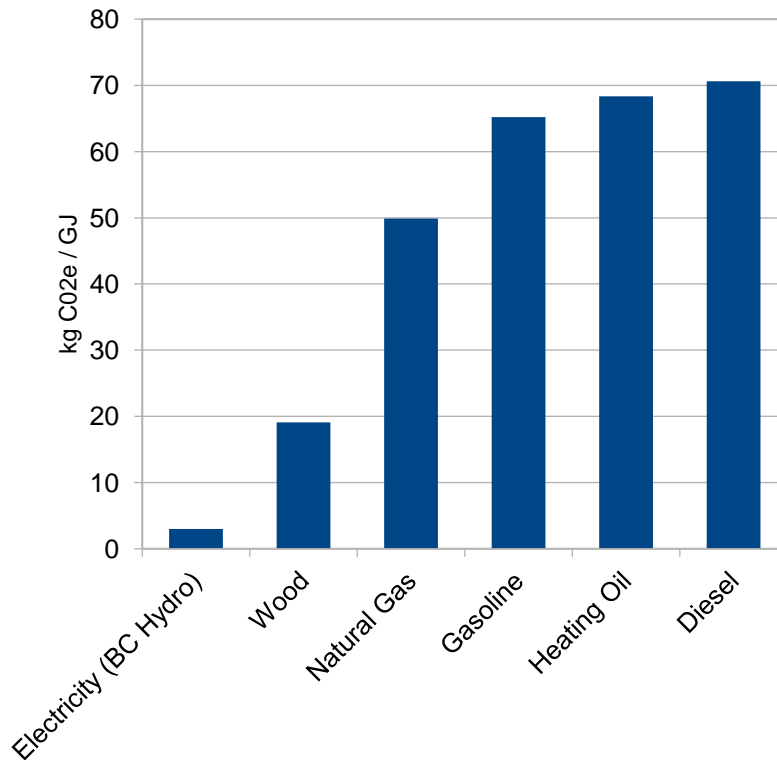


Figure 3 Carbon intensity of common fuels

DATA GAPS / TRACKING EMISSIONS

Despite setting emissions reduction goals starting in 2010, data collection has not been consistent to allow the City to report if progress has been made. A key issue has been a lack of provincial on-going data collection—the province originally committed to releasing its Community Energy and Emissions inventory every two years. For various reasons, this program was halted after the release of the 2012 inventory, causing significant gaps in data.

The Province has subsequently released utility data yearly broken down by local government. However, the data is aggregated into categories that make sense for utilities, but not necessarily to understand what kinds of buildings are driving emissions growth over time. **Asking the province for better disaggregate building data** would allow Nanaimo to target its building programs to those building types and sectors where potential reductions would be greater.

Transportation data is generally the responsibility of the City. However, due to the expense of collecting it, travel surveys are done infrequently (the latest survey was done in 2012) and focuses on mode share and travel distance. These metrics are more useful for managing congestion than for tracking transportation emissions. Total annual vehicle kilometers travelled (VKT) is the key driver of transportation emissions: it is currently not tracked necessitating reliance on estimates and province-wide factors to understand vehicle emissions over time. **Tracking VKT on a consistent time frame** (at least every 5 years) would allow the City to understand if transportation investments are having the desired effect on transportation emissions.

BUILDINGS

Existing Buildings

While municipal policies have typically focused on regulating new developments, reducing emissions from the existing building stock in Nanaimo is critical to reaching Nanaimo's climate targets. The overwhelming majority of existing buildings will still exist in 2030, and most in 2050. Buildings contributed 169,000 tonnes of c02e in 2017: to meet targets, this needs to be reduced to 84,000 tonnes, and by 2050 this needs to be reduced to close to zero.

The City of Nanaimo has limited jurisdiction over retrofits and cannot currently mandate particular heating systems or standards for increased building GHG efficiency. While higher levels of government have committed to introducing a retrofit code, this is likely years away from implementation. Currently, the City is limited to providing education and financial incentives.

FUEL SWITCHING

From 2010 to 2017, natural gas usage has been increasing above the rate of population growth. This suggests that, due to the low cost per GJ of natural gas at present, residents and businesses are switching from low-efficiency electrical systems such as baseboards or electric furnaces to natural gas furnaces. While this likely results in short-term cost savings to residents and businesses, it runs counter to Nanaimo's climate change goals. Provincial incentives to switch to low carbon heating and hot water systems have recently been increased to \$3000 for high efficiency installs. In addition, there is a \$500 incentive for related upgrade to electrical service if required. Nanaimo currently tops up the provincial heat pump rebate by \$350 and the electrical service upgrade by \$500. It is worth noting that these incentives, while considerably higher than the recent past, are still less than the incremental cost of a heat pump system vs a natural gas furnace (estimated at \$5000 or more). **Other local governments in BC have substantially increased their incentives in order to quickly drive fuel switching** (e.g. the City of North Vancouver and Victoria now offer \$2000 top-ups for converting to a heat pump, while Vancouver offers up to a \$6000 top up limited to 80% of install cost.)

OIL TO HEAT PUMP PROGRAM

According to provincial estimates, approximately 360,000GJ of heating oil was consumed in Nanaimo in 2017, resulting in roughly 20% of estimated building emissions overall. This translates into upwards of 3500 homes heated by heating oil. As heating oil furnaces are likely to be older and less efficient than natural gas furnaces,

and have other environmental risks from potential oil spills, it makes sense to **target heating oil conversion to low-carbon energy such as electric heat pumps.**

RENEWABLE NATURAL GAS

Fortis BC has been providing a renewable natural gas (RNG) option to its customers since 2010. Naturally occurring methane from decomposing organic waste from farms, landfills and other suppliers are captured and cleaned and injected into the main natural gas supply, reducing its overall GHG emissions. As renewable natural gas comes from organic matter within the earth's annual carbon cycle, it is considered carbon neutral. Currently, demand far exceeds available supply, even at prices higher than conventional natural gas. Fortis BC has set an ambitious target of providing 15% renewable natural gas by 2030. If sufficient sources of RNG can be found and developed, it could be a significant part of achieving Nanaimo's climate goals. However, a 15% reduction in emissions from natural gas would only represent 3% of Nanaimo's total emissions in 2017. It should not be viewed as a quick fix for easily reducing building emissions, but rather reserved for those buildings that are particularly difficult to retrofit to zero emission fuel sources (recreation facilities, heritage buildings and industrial processes that require combustion.)

LOW INTEREST LOANS

In order to further reduce the burden on upgrading their buildings, some local governments across Canada have chosen to offer **low/zero-interest loans to upgrade systems that reduce their emissions.** The idea is that local governments can access financing at lower rates than many individuals and can assist homeowners to make projects more financially viable.

Nelson, BC has an EcoSave program that targets energy efficiency upgrades and assists homeowners and businesses to navigate retrofit rebates. It also allows upgrade costs to be financed at low-interest rates and repaid via on-bill payments to the city-owned electric utility. Recently, e-bikes were added to the suite of acceptable projects.

More information: <https://www.nelson.ca/742/EcoSave-Energy-Retrofit-Program>

Halifax, NS runs the Solar City program, which allows for financing of energy efficiency and renewable energy projects. The municipality places a voluntary Local Improvement Charge (LIC) on the property after a pre-approved efficiency project is completed.. The LIC is an additional annual charge and is separate from the property owner's annual property tax bill. The charge is tied to the property, not the owner, so charges continue in the event the property is sold.

More information: <https://www.halifax.ca/home-property/solar-projects/about-solar-city-halifax>

New Construction

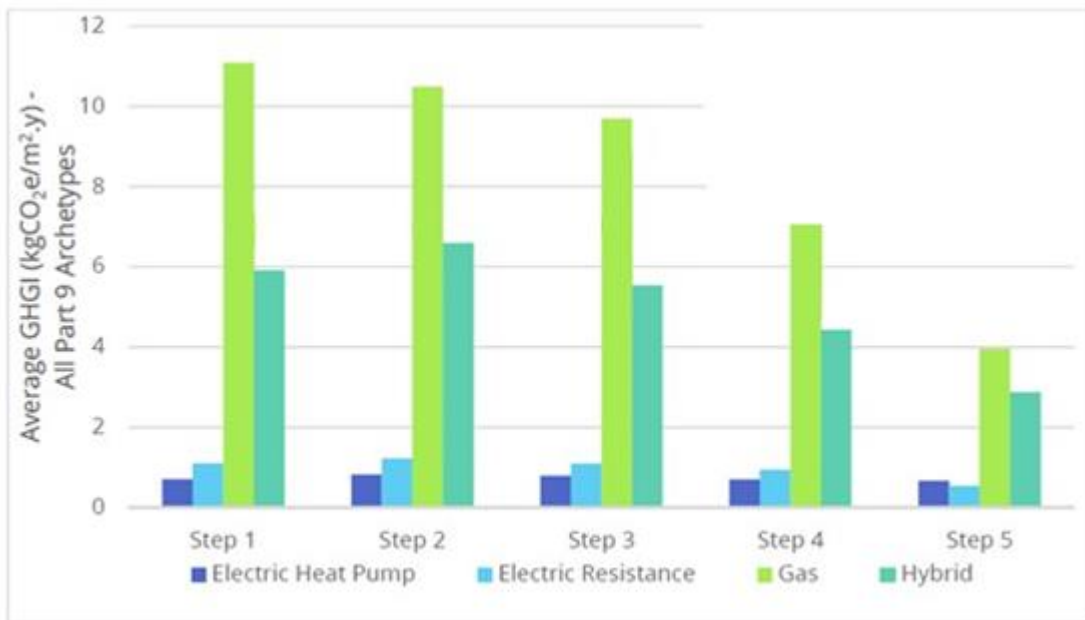
While new buildings are considerably more efficient than the average older building, unless they are fueled by zero-carbon energy sources, each new building built in Nanaimo will continue to increase emissions rather than

decrease them. Given the difficulty inherent in reducing emissions from existing buildings, careful consideration should be given to minimizing the number of new buildings that are not low to zero carbon.

STEP CODE VS GHG INTENSITY

In 2018, Nanaimo adopted BC’s voluntary Step Code. The step code provides standardized tiers (“steps”) of building performance that a local government can require builders to achieve. Starting in 2020, new construction in Nanaimo is required to demonstrate that it meets existing energy efficiency requirements, and in 2021/2022, new buildings will be required to be 10% more efficient than current code, increasing to 20% by 2022 for smaller buildings like houses and simple commercial buildings.

While requiring higher efficiency building seems at first glance to be a good measure to reducing occupants energy costs and carbon emissions, in practice it is not necessarily the most effective approach to reducing GHG emissions from new construction. A 2019 study by the Integral group demonstrated that the carbon intensity of the fuel used to provide heating and hot water to a building has far more impact than the absolute efficiency (see figure 4.) A lower efficiency building heated with electricity can have far lower carbon emissions than a highly efficient building that uses natural gas as its primary source of energy.



Part 9 - GHG Intensity by Mechanical System (average across all archetypes)

Figure 4 Source: Integral Group, Implications of the BC Energy Step Code on GHG Emissions June 2019

Achieving higher steps in the step code can also be complex and expensive for builders: using electricity as a primary source is often considerably less expensive than achieving high levels of efficiency. As a result, municipalities have started to introduce alternative approaches to the step code: the City of Burnaby allows buildings that meet a GHG intensity target to meet a lower step. While this lowers the overall efficiency of the building, it meets the City’s GHG objectives while also lowering costs to developers.

More

Information:

[https://www.burnaby.ca/Assets/city+services/building/Brochures+\\$!26+Bulletins/Building+Technical+Information/Energy+Step+Code+\(Part+3+Buildings\).pdf](https://www.burnaby.ca/Assets/city+services/building/Brochures+$!26+Bulletins/Building+Technical+Information/Energy+Step+Code+(Part+3+Buildings).pdf)

DENSITY BONUSING FOR ENERGY EFFICIENCY/LOW EMISSIONS

While Nanaimo has chosen to implement the Step Code on a city-wide basis, it is possible to require higher levels of efficiencies for re-zonings, in effect using density-bonusing to offset the costs of increasing energy efficiency.

An example from the City of North Vancouver: <https://www.cnv.org/-/media/city-of-north-vancouver/documents/density-bonusing-program/step-code-rezoning-policy-for-part-3-buildings.ashx?la=en>

TRANSPORTATION

Transportation is the largest contributor to GHG emissions in Nanaimo, accounting for 63% of emissions in 2017. Of this, 80% of emissions were from personal vehicles such as cars, small trucks and SUVs, while 20% were from larger commercial vehicles such as tractor trailers and large trucks.

Demand Reduction

Reducing the amount of travel, particularly from single occupancy vehicle traffic, is a simple, yet long term, way to reduce emissions. Continuing Nanaimo's development towards dense nodes connected by transit and pedestrian oriented corridors should contribute over time to reduced travel demand, as residents live closer to their everyday needs and choose to drive less. Ongoing investments in bike networks and pedestrian infrastructure will also accelerate this trend.

Nanaimo's Transportation Plan sets out a goal of doubling sustainable mode share from 12% to 24% by 2041. This includes goals for walking (12% of all trips), cycling (4%) and transit (8%). These shifts should reduce community carbon emissions: walking and cycling trips are zero carbon, and transit will become low to zero carbon as BC Transit implements its Low Carbon Fleet Program over the next two decades.

Investments in active transportation, in addition to reducing congestion and improving community health, among other benefits, will likely have a modest impact on transportation emissions. A 12% increase in mode share does not translate into a 12% reduction in carbon emissions from transportation: trips that shift to active transportation tend to be shorter trips (e.g. the average pedestrian trip in 2012 was 800 meters vs 6.5km for vehicle trips). Distance travelled and fuel type is what ultimately drives transportation emissions, not mode share.

Research has shown that vehicle ownership rates have a high correlation with total vehicle kilometers travelled: households with fewer vehicles drive less. Restricting parking (or reducing parking requirements for new

buildings) could be very effective in reducing the amount of travel in vehicles and reducing transportation emissions.

Electric Bikes

The recent explosion in electric bikes (e-bikes) has the potential to up-end the comments above. With the increased availability and reduced price of electric-assisted bicycles, the type and length of trips made by the average rider appears to be increasing and a wider cross-section of society is adopting them. Initial research has indicated that e-bike trips are more likely to replace vehicle trips than other modes, but research is still unclear on the extent of this shift in practice.

Municipal policies targeting bicycling such as improved bike routes and secure bicycle parking are likely to benefit e-bike users as well. Some municipalities are currently exploring other ways to increase the uptake of e-bikes, such as including them in low-interest financing programs (Nelson, BC) or providing subsidies to specific users (District of Saanich.)

Electric Vehicles

BC's 2018 CleanBC plan recognized that electric vehicles (EVs) are a key part of achieving BC's transportation emissions goals. While other technologies such as hydrogen vehicles might gain prominence over time, current worldwide trends suggest that electric vehicle availability is set to increase substantially. As battery prices fall and range increases, manufacturers have announced ambitious electric vehicle programs that will broaden the types of vehicles available to consumers. BC has mandated that by 2025, 10% of all personal vehicles sold in the province will be zero-emissions, increasing to 25% by 2030 and 100% by 2040. The vast majority of these vehicles are expected to be electric.

Due to the low carbon content of electricity in BC, and the increased efficiency of EVs compared to internal combustion engines (up to 80% of the energy used by combustion engines is wasted as heat), EVs can reduce carbon emissions per kilometer by more than 98%.

As of December 2019, according to ICBC data, only 0.4% of vehicles registered in Nanaimo were EVs. This is even though 9% of light-duty-vehicles sold in BC in 2019 were electric vehicles, up from 4% in 2018. Due to the lifespan of a typical vehicle (estimated to be 15 years on average), the number of electric vehicles on the road will increase gradually. The Current Policy Trends scenario assumes that 12% of light-duty vehicles will be EVs by 2030, rising to close to 100% by 2050. Providing adequate charging infrastructure to accommodate the roughly 80,000 EVs required by 2050 is critical.

Research, such as from the Sustainable Transportation Action Research Team at SFU, has identified home charging infrastructure as a key barrier to widespread adoption of EVs.

While installing charging stations in single family, duplex and townhouses is relatively simple and inexpensive, retrofitting significant numbers of charging stations in apartments and condo buildings is expensive and

technically challenging. This is particularly the case if one anticipates that 100% of vehicles in a given building will be electric by 2050.

In the 2018 updates to its Parking Bylaw, Nanaimo requires that 10% of parking spaces in new multi-family buildings have chargers installed, and a further 20% are required to have electrical infrastructure to allow them to be upgraded to provide charging. Further requirements are in place for single-family dwellings and off-street parking for commercial developments. **Further investigation is advised to determine if this level of charging infrastructure is sufficient to meet the future situation where 100% of vehicles will need charging.**

While the parking bylaw provides charging infrastructure for residents of buildings built after 2018, as of 2016 there were roughly 8,500 multi-family units in Nanaimo. Retrofitting them to provide adequate charging to accommodate 100% of vehicles is likely to be difficult. While most public charging stations in Nanaimo are currently located at destinations such as shopping malls, car dealerships and public institutions, meeting the needs of these households is likely to require more charging infrastructure near these homes. In order to ensure that every resident could switch to a zero-emissions vehicle, **a plan should be developed to strategically target specific neighbourhoods for public charging infrastructure.**

The following document provides information on residential EV charging for BC local governments:

<https://pluginbc.ca/wp/wp-content/uploads/2018/10/Residential-EV-Charging-A-Guide-for-Local-Governments.pdf>

SOLID WASTE

Solid waste represented 6% of community emissions in 2017. Solid waste emissions result from the decomposition of organic wastes in a landfill which results in methane and other gases that have a potent greenhouse effect. Two main approaches to reducing these emissions are diverting organic matter to composting facilities and landfill gas capture.

Diverting Organic Waste

Nanaimo has seen a dramatic increase in the amount of household waste diverted from the landfill since introducing the green bin collection of household organics in 2012: from 32% in 2012 to 66% in 2019. The RDN goal of 90% diversion by 2029 per the Regional Solid Waste Management Plan should reduce the amount of emissions from organics in the landfill.

A Waste Composition study being conducted in 2020 should give further insight into the primary source of organic waste and help the City tailor waste reduction programs to reduce organic waste in the landfill. Increased wood waste from construction is thought to be one of the drivers of the increase in organic waste and emissions.

In the long term, in order to reduce emissions from solid waste to zero as per Nanaimo’s 2050 emissions targets, exploring alternatives such as additional landfill gas capture or achieving true zero waste with respect to organics would need to be pursued.

IMPLICATIONS FOR THE OFFICIAL COMMUNITY PLAN UPDATE

Since the current OCP (“planNanaimo”) was adopted in 2008, the issue and challenges of mitigating and adapting to climate change have become more prominent. However, the OCP’s adoption of Sustainability as a guiding principle for the plan – and related actions on integrated land use and transportation planning remain relevant. Even as the 2008 OCP reaffirmed the vision from the 1996 OCP while providing a clearer indication of sustainability as an integral element of Nanaimo’s vision for itself, the 2020 OCP update has the opportunity to embed the urgency of council’s climate emergency declaration into Nanaimo’s guiding document.

In order to achieve a 50% reduction in Carbon emissions by 2030, and achieving a 100% reduction by 2050, all decisions need to be evaluated in terms of implications for carbon emissions. While an OCP is not the place for specific technologies or implementation action details, the overall vision needs to reflect the urgency of reducing carbon emissions across the community. Providing a framework that prioritizes emission reductions over other demands, at least in the short term, could provide direction to staff to direct resources to achieve Nanaimo’s ambitious emission reduction goals.

OTHER PRECEDENTS AND RESOURCES:

Local governments around the world are very active in mitigating greenhouse gases. The following links provide ‘food for thought’ about precedent actions elsewhere. Enabling legislation and legal frameworks vary and therefore not all of these actions can be immediately implemented in British Columbia without the cooperation of Senior Governments.

Ban on Natural Gas for new construction

https://www.cityofberkeley.info/uploadedFiles/Planning_and_Development/Level_3_-_Energy_and_Sustainable_Development/Berkeley%20Energy%20Reach%20Code%20for%20Electrification%20and%20Natural%20Gas%20Prohibition%209-27-19.pdf (last visited Sept 3 2020)

- Purpose: To reduce the GHG emissions from new construction to close to zero.
- Method: the City of Berkeley, California, has adopted an ordinance which bans natural gas for new construction as of January 1st, 2020. It provides a number of exemptions for developers and owners, such as a public-interest exemption and/or when it is not feasible to construct a new building without natural gas. Other cities in the United States are considering similar bans, such as Seattle, WA, and Bellingham, WA, which have similar electrical grid mixes as British Columbia.

Reduce average vehicle distance driven per resident

<https://vancouver.ca/files/cov/greenest-city-action-plan-implementation-update-2019-2020.pdf> (last visited Sept 3 2020)

- Purpose: Reduce average vehicle distance driven per resident by 20% from 2007 to 2020
- Method: The City of Vancouver set a goal of reducing distance driven by resident by 2020 in addition to mode share goals. Due to an ambitious program of building bicycle and pedestrian infrastructure, large federal and provincial investments in rapid and conventional transit, coupled with increasing density in key mixed-used locations, they exceeded their target and achieve a 37% reduction of average vehicle distance travelled per resident in 13 years.

Allowing Consumers to Request Public EV Charging Infrastructure

<https://www.interregeurope.eu/policylearning/good-practices/item/1699/amsterdam-s-demand-driven-charging-infrastructure/> (last visited Sept 3 2020)

- Purpose: Increase EV Charging infrastructure in existing neighbourhoods in order to maximize usage
- Method: The City of Amsterdam has become one of the world leaders in public charging infrastructure by allowing individual car drivers to request needed charging infrastructure, instead of relying exclusively on top down planning. A framework for evaluating requests means that new installations serve both individual and overall network needs. Amsterdam now has over 3800 public chargers serving a variety of neighbourhoods that would have been difficult to retrofit either due to lack of parking or electrical infrastructure limitations.